Results PhD Supervisor Survey 2018

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Executive summary

As part of the research project 'Succesvol Promoveren', investigating PhD trajectories at the University of Groningen (UG), a survey was distributed among the supervisors of PhD students. The goal of this survey was to gain more insight into the role of PhD student supervisors in supporting a successful PhD trajectory, as well as preparation for future careers. Topics such as supervisor workload and work pleasure, and their opinions on the PhD scholarship programme and their supervisory role were investigated, in addition to supervision styles.

Sample
The survey was completed by 464 supervisors, with an average age of 48, and with 60% of the sample being male. Dutch supervisors and supervisors from the Medical Sciences were over-represented in this sample. Of the supervisors, 43% were promotor, 36% co-promotor and 28% were daily supervisors. Below, we describe the main findings related to each of the themes addressed in the survey. In general, we found significant group differences for several of the themes. These are addressed in separate chapters.

Workload and work pleasure
More than two-thirds of the supervisors felt that the number of PhD students they supervised was perfectly acceptable, and 60% indicated that they gave equal amounts of time to both junior (first and second-year) and senior PhD students. Supervisors were neutral about their supervision workload and their capacity to combine their supervision with other tasks. They did not perceive the supervision of PhD students as being stressful, but felt that it added to their work pleasure.

PhD student success
Of the supervisors, 26% had half of their PhD students finish within the time of their contract. Of those PhD students who needed extra time to finish, 60% needed from one month to a year. Of the supervisors, 58% indicated that they would want a thesis to be awarded 'cum laude' if it belonged to the top 5%. However, they were neutral about whether PhD students should be given the opportunity to work for a few more months on a high-quality PhD thesis to be able to apply for a cum laude distinction. The supervisors did not think that a cum laude distinction was necessary for a successful career in academia, nor did they think that the regulations and procedures for obtaining a cum laude distinction would create a barrier to them applying for it.

Supervisor supervision characteristics
More than half of the respondents perceived PhD supervision as a joint task of all of the supervisors. Two-thirds of the supervision teams consisted of two supervisors.

Overall, the supervisors felt that they had good relationships with their PhD students, which they considered to be important. They also indicated that they had a better match with some PhD students than with others. However, speaking the same language, having the same cultural background, values and approach to life, a compatible personality or the same gender were not important to supervisors in their supervision.

Almost half of the supervisors met their PhD students approximately once a week. Overall, the supervisors were generally positive about being able to respond to requests and provide feedback within a reasonable time frame.

The supervisors more often gave academic and autonomy support to junior PhD students than to senior PhD students. This was also the case for personal support, which was given even more frequently.
The supervisors were asked about their expectations regarding articles for publication, the thesis, the courses PhD students follow and finishing on time. They tended to disagree with the statement about expectations regarding papers being published before submitting a thesis, as well as the statement about courses being a waste of time. Overall, supervisors were generally satisfied with the quality of PhD students' work and the amount of time PhD students take to finish.

The supervisors indicated that having trouble with academic writing was the most significant problem PhD students experienced, whereas a bad 'match' between supervisor and PhD student was the least significant problem. More than half of the supervisors had never had a PhD student dropout. For those who had, personal circumstances were the most frequently mentioned reason for dropout.

One-third of the supervisors' PhD students who had finished their doctorate worked in academia, and 41% of their current PhD students aspired to a career within academia. The supervisors tended to discuss career plans with both junior and senior PhD students. They also indicated that the expectations they have for PhD students were the same regardless of their career plans. Furthermore, supervisors agreed with the statement that helping PhD students to make career choices was part of their responsibility. They also indicated that they were familiar with the career opportunities within and outside academia in the Dutch context, as well as within academia in non-Dutch contexts. However, they were less familiar with the career opportunities outside academia in non-Dutch contexts.

The supervisors were neutral or slightly positive in their responses to statements on career-related aspects within and outside academia (e.g. whether skills that are learned are useful for their careers, or whether there are sufficient job opportunities within the field). However, the supervisors tended to disagree about having a useful international network that could help the PhD students to find a job, and that research-based activities were sufficient to prepare students for a career after their PhD.

One-third of the supervisors had never taken a course or workshop in supervision. Of those who had, 47% found it rather useful. We asked supervisors to indicate their self-efficacy related to supervision. They found themselves quite capable, especially in being able to build effective relationships.

Almost half of the supervisors indicated that the Graduate School offered them some level of support related to providing information: 55% related to keeping track of PhD student progress, 49% related to support in the case of problems, and 55% related to courses/workshops and other events that were useful.

PhD scholarship programme
Overall, the supervisors were somewhat familiar with the aims and conditions of the PhD scholarship programme. The supervisors scored around or slightly above the scale mean on statements about the PhD scholarship programme, which means that they were neutral about statements such as, 'A PhD scholarship is an attractive option if you want to pursue a career' or 'The PhD scholarship offers a useful opportunity to move smoothly from a Master's degree to a PhD track'. There were a few exceptions in which they scored lower. This concerned whether a PhD scholarship offered more opportunity to do curiosity-driven research; whether PhD scholarship students would finish faster due to intrinsic motivation; and whether they found it problematic that PhD scholarship students could choose their own work hours and location.

Of the supervisors, 36% supervised PhD scholarship students. This group also responded to statements on differences between PhD scholarship students and employed PhD students. Overall, they scored below to well below the scale means, indicating that they did not agree with these items. Thus, they did not perceive differences between PhD scholarship students and employed PhD students on these statements.

1. Characteristics of the sample

A total of 464 supervisors completed the Supervisor Survey (see Table 1). Approximately one-third of those supervisors were full or emeritus professors. Approximately one-quarter were assistant professors and one-fifth associate professors. A smaller number were postdoctoral researchers. The 30 remaining supervisors had a position other than those named above.

Table 1. Position

Position	% (frequency)
Postdoctoral researcher	10.8 (50)
Assistant professor	24.6 (114)
Associate professor	19.8 (92)
Full professor	34.7 (161)
Emeritus professor	3.7 (17)
Other	6.5 (30)
Total	100 (464)

The supervisors had an average age of 48 (see Table 2). One-third of supervisors were in their 40s, and half were in their 30s or 50s. One in five was 60 or older. Only one supervisor reported being younger than 30.

Table 2. Age

Age category	% (frequency)
< 30	0.3 (1)
30–39	23.1 (92)
40–49	33.4 (133)
50–59	25.1 (100)
60+	18.1 (72)
Total	100 (398)
Mean (SD)	48.4 (10.3)

Six out of ten supervisors were male (see Table 3).

Table 3. Gender

Gender	% (frequency)
Male	60.1 (270)
Female	39.9 (179)
Total	100 (449)

The majority of the supervisors were Dutch (see Table 4). Among the non-Dutch supervisors, most had a European nationality. Fewer than 20 supervisors had a non-European nationality.

Table 4. Nationality

Nationality	% (frequency)
Dutch	77.2 (348)
European (non-Dutch)	18.8 (85)
Non-European	4.0 (18)
Total	100 (451)

The supervisors were also asked which Graduate School most of their PhD students belong to (see Table 5). The majority of the supervisors' PhD students belonged to either the Graduate School of Medical Sciences, the Graduate School of Science and Engineering or the Graduate School of Behavioural and Social Sciences, with the Graduate School of Medical Sciences representing the largest group of supervised PhD students.

Table 5. Graduate School

Graduate School	% (frequency)
Behavioural and Social Sciences (Sosc)	11.9 (55)
Campus Fryslân	0.4 (2)
Economics and Business (FEB)	8.0 (37)
Humanities (Hum)	9.1 (42)
Law	3.0 (14)
Medical Sciences (Med)	41.6 (192)
Philosophy	0.9 (4)
Science and Engineering (FSE)	20.8 (96)
Spatial Sciences	3.0 (14)
Theology and Religious Studies	1.3 (6)
Total	100 (462)

We also asked supervisors about their own discipline (see Table 6). The largest share of supervisors (approx. 40%) reported that their discipline was Medical Sciences.

Table 6. Discipline

Discipline	% (frequency)
Humanities	14.3 (66)
Social Sciences	23.0 (106)
Medical Sciences	41.7 (192)
Science	20.9 (96)
Total	100 (460)

We asked supervisors what roles they have as PhD supervisors (see Table 7). Half of the supervisors reported that they assumed different kinds of roles for the same PhD student: they were both co(promotor) and supervisor. Two out of five reported having the role of promotor, one out of three reported they were a copromotor and one in four daily supervisor. A small number of supervisors also had a different supervisory role to those mentioned.

Table 7. Role(s) as a PhD supervisor (multiple answers possible)

Role	% (frequency)
Promotor	43.2 (204)
Copromotor	35.8 (169)
Daily supervisor	28.0 (132)
(Co)promotor and daily supervisor*	52.8 (249)
Other	2.3 (11)

* This refers to supervisors who play (i.e. for the same PhD students) both a (co)promotor role and act as a daily supervisor.

We also asked the supervisors which role takes up most of their time (see Table 8). A combined role of (co)promotor and daily supervisor for the same PhD student took up most time for over 30% of the supervisors. Assuming the role of promotor took up most time for another 30% of the supervisors. Being a daily supervisor took up most time for 20% of the supervisors, and being a copromotor took the most time for 10% of the supervisors.

Table 8. Role that takes up most time

Role	% (frequency)
Promotor	30.4 (140)
Copromotor	12.1 (56)
Daily supervisor	18.7 (86)
(Co)promotor and daily supervisor	38.8 (179)
Total	100 (461)

More than half of the supervisors were not a promotor to any of the PhD students they supervised (see Table 9). Those who had assumed that role, often had fewer than ten PhD students for whom they were promotor.

Table 9. Number of PhD students as a promotor

Number	% (frequency)
0	57.2 (270)
1–5	14.8 (70)
5–9	18.0 (85)
10–14	6.6 (31)
15–19	3.0 (14)
20+	0.4 (2)
Total	100(472)

2. View on supervision and characteristics of PhD students under supervision

We also investigated how supervisors viewed their supervision (see Table 10). Half of the supervisors considered the supervision of PhD students to be the joint task of all official supervisors. One out of five thought it was mainly the task of the daily supervisor, and one out of ten thought that, for the most part, PhD supervision was the task of the promotor. Fewer supervisors found PhD supervision to mainly be the task of the copromotor or the task of the group or department to which individuals with a non-official supervisory role also contribute. Some supervisors reported viewing PhD supervision in a different way from those described.

The supervisors' views on PhD supervision did not differ greatly from discipline to discipline. One notable difference was that supervisors of PhD students in the discipline of Social Sciences more often viewed supervision as a joint task of all official supervisors, and less often as primarily the task of the promotor compared to supervisors of PhD students in other disciplines. Furthermore, supervisors in the Social Sciences and the Humanities less often considered PhD supervision to be a group/departmental task in which non-official supervisors also play a role, compared to supervisors in the Medical Sciences and Science.

Table 10. View of PhD supervision

View	Humanities	Social Sciences	Medical Sciences	Science	Total
Mainly the task of the promotor	19.7 (13)	7.5 (8)	12.5 (24)	12.5 (12)	12.3 (57)
Mainly the task of the copromotor	-	2.8 (3)	3.1 (3)	3.1 (3)	3.9 (18)
Mainly the task of the daily supervisor	24.2 (16)	20.8 (22)	24.0 (23)	24.0 (23)	18.1 (84)
The joint task of all official supervisors	45.5 (30)	65.1 (69)	43.8 (42)	43.8 (42)	54.7 (254)
A group/departmental task in which non-official supervisors also play a role	1.5 (1)	2.8 (3)	10.4 (10)	10.4 (10)	6.7 (31)
Other	4.3 (20)	0.9 (1)	6.3 (6)	6.3 (6)	4.3 (20)
Total	100 (66)	100 (106)	100 (192)	100 (96)	100 (464)

We asked supervisors about the nationality of the PhD students under their supervision (see Table 11). In almost 40% of cases, the supervisor's PhD students were a mixed group of Dutch and international students. The remaining supervisors fell into two equally large groups (each 30% percent), either those whose PhD students were mainly international or those whose PhD students were mainly Dutch. We also examined whether the nationality of PhD students under supervision differed across disciplines. Supervisors in the Sciences stood out as there PhD students were more often mainly international.

Table 11. Nationality of PhD students under supervision
Which description regarding nationality most adequately applies to the PhD students you currently supervise?

Nationality	Humanities	Social Sciences	Medical Sciences	Science	Total
Mainly international	27.7 (18)	23.6 (25)	19.8 (38)	61.5 (59)	30.5 (141)
Mainly Dutch	32.3 (21)	33.0 (35)	45.3 (87)	4.2 (4)	31.7 (147)
A mixed group	40.0 (26)	43.4 (46)	34.9 (67)	34.4 (33)	37.8 (175)
Total	100 (65)	100 (106)	100 (192)	100 (96)	100 (463)

With respect to the international PhD students under supervision, half of the supervisors reported that most were non-European (see Table 12); one in five reported that their international PhD students were mostly European; while the remaining supervisors reported that their international PhD students consisted of similar numbers of European and non-Europeans.

The share of supervisors having mostly European, mostly non-European or having similar numbers of European and non-European international PhD students differed from discipline to discipline (see Table

12). In the Medical Sciences, Social Sciences and Science, close to or just over half of the supervisors reported having mostly non-European international PhD students. The largest share of supervisors (approx. 40%) in the Humanities reported that the numbers of European and non-European students were about the same. Supervisors in the Social Sciences more often reported having mostly European international PhD students compared to their counterparts in other disciplines.

Table 12. Nationality of *international* PhD students under supervision
Are the international PhD students you currently supervise mostly European or non-European?

Nationality	Humanities	Social Sciences	Medical Sciences	Science	Total
Mostly European	22.2 (4)	36.0 (9)	18.4 (7)	16.9 (10)	21.3 (30)
Mostly Non-European	33.3 (6)	48.0 (12)	57.9 (22)	52.5 (31)	51.1 (72)
About the same	44.4 (8)	16.0 (4)	23.7 (9)	30.5 (18)	27.7 (39)
Total	100 (18)	100 (25)	100 (38)	100 (59)	100 (141)

We also asked supervisors about the number of supervisors in the supervision team (see Table 13). In most cases, supervision teams consisted of two or three supervisors, with two supervisors being the most common. One in ten supervisors stated that in most cases their PhD students were only supervised by them and did not have a supervision 'team'. For a small minority of supervisors, the supervision teams typically consisted of more than three supervisors.

Table 13. Supervision teams
Please indicate what the supervision teams look like in most cases.

Supervision team	% (frequency)
One supervisor	9.3 (43)
Two supervisors	60.8 (281)
Three supervisors	26.6 (123)
More than three supervisors	3.2 (15)
Total	100 (462)

The supervisors were also asked about their experience in supervising PhD students at the UG and other universities (see Table 14). Almost one in three supervisors had one to five years of supervision experience. An equally large share of supervisors had six to ten years of experience. One in six had 11 to 15 years of experience and just over one in four reported having more than 15 years of experience.

Table 14. Number of years of experience in supervising PhD students
For how many years have you been supervising PhD students? If you have been a PhD supervisor at other universities, please also include those years.

Number of years	% (frequency)
1–5	29.3 (130)
6–10	28.0 (124)
11–15	15.8 (70)
15+	26.9 (119)
Total	100 (443)

3. PhD student completion

We asked supervisors a number of questions regarding their PhD student completion rates. First, we asked them to report the number of students under their supervision who had successfully defended their thesis (see Table 15). For one out of five supervisors, this had not yet happened to any of their PhD students. According to half of the supervisors, one to ten of their PhD students had successfully defended their thesis. For the remaining one in four supervisors, more than ten of their PhD students had successfully defended their thesis.

Table 15. Completion rate
How many students under your supervision have successfully defended their thesis?

Number of PhD students	% (frequency)
None so far	19.0 (88)
1 or 2	19.4 (90)
3 to 5	19.4 (90)
6 to 10	15.8 (73)
10 to 15	10.2 (47)
More than 15	16.2 (75)
Total	100 (463)

A second aspect related to PhD student completion is the number of PhD students who defended their thesis within the time of their contract (see Table 16). Two-thirds of all supervisors stated that at least half of their PhD students who had already defended their thesis submitted it to the Assessment Committee before the end of their original contract. For approximately one-fifth of supervisors, all of their PhD students had submitted their thesis before that point. For one-fifth of supervisors, less than half of their PhD students had finished their PhD within the time of their contract. The remaining one in six supervisors reported that none of their PhD students had managed to complete their PhD in time.

Responses to this question on timely completion did not differ greatly across disciplines. Two notable exceptions were that supervisors in the Social Sciences were less likely to report that all of their PhD students completed their PhD before their contracted ended, and that supervisors in the Medical Sciences and Science more often reported that none of their PhD students had completed their PhD before the end of their contract.

Table 16. Timely completion
How many PhD students under your supervision finished their PhD within the time of their contract? (i.e. submitted their thesis to the Assessment Committee before the original contract ended)

Number of PhD students	Humanities	Social Sciences	Medical Sciences	Science	Total
None	18.8 (9)	18.2 (14)	13.4 (20)	12.7 (10)	15.2 (54)
Less than half	18.8 (9)	24.7 (19)	16.1 (24)	29.1 (23)	21.1 (75)
About half	20.8 (10)	22.1 (17)	18.8 (28)	15.2 (12)	18.9 (67)
More than half	20.8 (10)	23.4 (18)	30.9 (46)	22.8 (18)	26.2 (93)
All	20.8 (10)	11.7 (9)	20.8 (31)	20.3 (79)	18.6 (66)
Total	100 (48)	100 (77)	100 (149)	100 (79)	100 (355)

We also asked supervisors how much extra time their PhD students needed to finish their PhD (see Table 17). Approximately half reported that most of their PhD students who did not finish on time needed up to one year of extra time to complete their PhD. For one in ten supervisors, most PhD students needed more than one additional year to complete their PhD. The remaining supervisors either did not know or did not remember how much extra time their PhD students had needed to complete their project, or reported that there was a lot of variation in how much extra time their PhD students had needed.

The extra time PhD students needed did not differ greatly across disciplines. However, in Science the PhD students more often needed one to six months of extra time compared to those of supervisors in other

disciplines, while the PhD students supervised in the Medical Sciences more often needed six months to one year of additional time than those in other disciplines.

Table 17. Extra time needed

Regarding those who did not finish on time, how much extra time did most of them take to finish?

Extra time needed	Humanities	Social Sciences	Medical Sciences	Science	Total
1 to 6 months	29.4 (15)	28.1 (25)	21.2 (31)	38.2 (29)	27.7 (101)
6 months to 1 year	21.6 (11)	25.8 (23)	34.9 (51)	19.7 (15)	27.5 (100)
More than 1 year	13.7 (7)	10.1 (9)	8.9 (13)	9.2 (7)	10.2 (37)
This differed a lot among the PhD students	21.6 (11)	18.0 (16)	23.3 (34)	21.1 (16)	21.2 (77)
I don't know/remember	13.7 (7)	18.0 (16)	11.6 (17)	11.8 (9)	13.5 (49)
Total	100 (51)	100 (89)	100 (146)	100 (76)	100 (364)

We also asked all supervisors for some more information about the situation of PhD students they may have (had) who did not manage to finish their PhD on time (see Table 18). For one in four supervisors, most of the PhD students received an extension. For one in five supervisors, the PhD students most often found a new job after their contract ended but before they had finished their PhD. For approximately one in ten supervisors, the PhD students most often finished their PhD while unemployed. One in four supervisors reported that the circumstances of PhD students who had not finished their PhD in time differed. The remaining supervisors did not find any of the above statements to be applicable to the circumstances of the PhD students who had not finished their project in time.

The circumstances of PhD students who had not finished their PhD before the end of their contract differed only slightly from discipline to discipline. One notable difference was that the supervisors of PhD students in the Humanities less often reported that most of the PhD students who had not finished in time had received an extension, compared to supervisors of PhD students in the Social Sciences, Medical Sciences or Science. However, the former group also reported more often that, in most cases, the circumstances of the PhD students who had not finished in time were other than receiving an extension, obtaining a job or finishing their PhD while unemployed.

Table 18. Circumstances of those who did not finish in time

Regarding those who did not finish in time, which statement is most applicable to their situation when their contract ended but the thesis was not yet finished?

Statement	Humanities	Social Sciences	Medical Sciences	Science	Total
Most received an extension	12.5 (6)	26.8 (22)	30.6 (44)	30.0 (21)	27.4 (95)
Most started a new job	20.8 (10)	19.5 (16)	24.3 (35)	20.0 (14)	21.6 (75)
Most finished while being unemployed	10.4 (5)	7.3 (6)	7.6 (11)	11.4 (8)	8.6 (30)
This differed a lot among the PhD students	31.3 (15)	28.0 (23)	25.7 (37)	30.0 (21)	27.7 (96)
Other	25.0 (12)	18.3 (15)	11.8 (17)	8.6 (6)	14.7 (51)
Total	100 (48)	100 (82)	100 (144)	100 (70)	100 (47)

4. Cum laude distinction

The supervisors answered a number of questions regarding the cum laude distinction. Firstly, we asked about the number of PhD students they supervised who had their thesis awarded with this distinction (see Table 19). The majority of supervisors did not have a PhD student whose thesis had been awarded the cum laude distinction. For those who did have this experience, most often only one or two PhD students had received the distinction.

Table 19. How many of your PhD students had their thesis awarded with the distinction 'cum laude'? (open question)

Number of PhD students awarded distinction	Humanities	Social Sciences	Medical Sciences	Science	Total
0	30 (12%)	59 (24%)	110 (44%)	51 (20%)	250
1–2	15 (16%)	15 (16%)	41 (43%)	25 (26%)	96
More than 2	3 (25%)	2 (17%)	3 (25%)	4 (33%)	12

Secondly, we also asked all of the supervisors in what situation they thought a thesis should be awarded the cum laude distinction (see Table 20). More than half thought it should be awarded when a thesis ranked in the top 5%, while almost one in four thought it should be awarded if the thesis ranked in the top 10%. Fewer supervisors stated that it should only be awarded when the thesis ranked in the top 2%. Very few supervisors thought a thesis should be awarded cum laude when it ranked in the top 20%.

Supervisors in different disciplines showed rather similar distributions of opinions with regard to the question of when a thesis should be awarded cum laude. Whatever their discipline, the supervisors most often thought that a thesis should be awarded cum laude when it ranked in the top 5%.

Table 20. When should a thesis be awarded 'cum laude'?

Situation	Humanities	Social Sciences	Medical Sciences	Science	Total
If it ranks in the top 2%	16.9 (11)	17.5 (18)	17.2 (32)	14.9 (14)	16.6 (75)
If it ranks in the top 5%	49.2 (32)	51.5 (53)	62.4 (116)	59.6 (56)	57.5 (260)
If it ranks in the top 10%	27.7 (18)	30.1 (31)	16.7 (31)	24.5 (23)	23.0 (104)
If it ranks in the top 20%	6.2 (4)	1.0 (1)	3.8 (7)	1.1 (1)	2.9 (13)
Total	100 (65)	100 (103)	100 (186)	100 (94)	100 (452)

We asked supervisors to respond to a number of other statements regarding the cum laude distinction. Firstly, we asked them whether a PhD student whose work was of very good quality should be given the opportunity to spend a few more months on their PhD project in order to apply for a cum laude distinction (see Table 21). Opinions regarding this statement differed tremendously across the entire group. On average, supervisors in the Medical Sciences had the highest level agreement; however, while this was a statistically significant difference, even these supervisors were generally neutral. Secondly, we asked whether they considered the distinction to be necessary for a successful career in academia. On average, the supervisors scored lower on this statement compared to the first, and supervisors in the Social Sciences had the lowest score on this statement.

Thirdly, we asked whether the cum laude regulations and procedures and the additional work they entail for supervisors create a barrier to them applying for it. The supervisors were neutral about this item, and there was little difference in opinions about this.

Table 21. Extension of PhD, requirement for success and potential barriers to cum laude

	Humanities	Social Sciences	Medical Sciences	Science	Total
If the quality of his or her work is very good, a PhD student should be given the opportunity to work for a few more months to apply for a cum laude distinction.**	2.94 (1.25)	2.80 (1.32)	3.34 (1.17)	2.91 (1.28)	3.08 (1.26)
A cum laude distinction is necessary for a successful career in academia.	2.18 (.94)	2.00 (1.02)	2.27 (1.04)	2.15 (.99)	2.17 (1.02)
The cum laude regulations and procedures and the extra work they entail for the supervisor create a barrier to applying for it.	2.65 (1.07)	2.78 (1.06)	2.68 (.96)	2.73 (.98)	2.71 (1.00)

** The difference between the disciplines is significant ($p < .01$).

5. Perception of supervision

We also asked the supervisors how they perceived their supervision. Firstly, we asked how they felt about the number of PhD students they supervised (see Table 22). A lion's share of supervisors stated they were 'Perfectly fine' with the number of PhD students they supervised. Approximately one in six supervisors felt they supervised too many PhD students, and another one in six considered the number of PhD students they supervised to be less than they would like.

Table 22. How do you feel about the number of PhD students you supervise?

	% (frequency)
Too many – I would like to supervise fewer PhD students	13.0 (60)
Perfectly fine	70.8 (327)
Too few – I would like to supervise more PhD students	16.2 (75)
Total	100 (462)

Secondly, we were interested in whether supervisors spend more time on supervision depending on the stage of the PhD project. More than half of the supervisors stated that they spent as much time on junior PhD students as they did on senior PhD students (see Table 23). Almost one-third of supervisors spent more time on junior PhD students. One in ten spent more time supervising their senior PhD students.

Table 23. Do you spend more time supervising PhD students when they are in the first two years of their project or when they are in the last two years?

Answer category	% (frequency)
I spend more time on PhD students when they are in the first two years of their PhD (or the first half of their trajectory, if it is not 4 years in total).	31.1 (142)
I spend more time on PhD students when they are in the last two years of their PhD (or the second half of their trajectory, if it is not 4 years in total).	10.5 (48)
The amount of time spent is about the same.	58.3 (266)
Total	100 (456)

Thirdly, the supervisors were also asked about their experience of the supervision workload, varying from very low to very high (see Table 24). We found that the supervisors were neutral about their workload, and there were no striking differences in the experience of supervision workload between supervisors in different disciplines.

Fourthly, we found that the supervisors scored below the scale mean on an item about whether supervising PhD students is stressful. The extent to which the supervisors experienced supervision as stressful did not differ greatly depending on the discipline of the supervisor. On average, supervisors across all disciplines considered supervision to be 'hardly' to 'somewhat stressful'.

Fifthly, we asked supervisors whether the supervision of PhD students added to their work pleasure (varying from 'not at all' to 'a lot'). For a large majority of supervisors, it added 'quite a bit' or even 'a lot' to the pleasure they derived from their work. Moreover, the degree to which supervising PhD students added to their work pleasure did not differ greatly from discipline to discipline.

Finally, we asked whether supervisors found it easy to combine supervision with other tasks they have (varying from 'very easy' to 'very difficult'). Most of the supervisors found it 'easy' or even 'very easy' to combine supervision with other tasks. Furthermore, on average, supervisors from different disciplines did not differ greatly on this item, with most finding it neither easy nor difficult.

Table 24. Statements about workload, stress, pleasure

Item	Humanities	Social Sciences	Medical Sciences	Science	Total
How do you experience your supervision workload?	3.47 (.85)	3.27 (.75)	3.39 (.65)	3.38 (.60)	3.37 (.69)
To what extent do you find supervising PhD students stressful?	2.44 (.92)	2.40 (.76)	2.50 (.81)	2.54 (.84)	2.48 (.82)
To what extent does supervising PhD students add to your work pleasure?*	4.14 (.88)	4.16 (.82)	4.37 (.69)	4.31 (.69)	4.28 (.75)
How easy or difficult do you find it to combine your supervision tasks with your other tasks?	3.12 (1.09)	2.99 (.85)	3.12 (.92)	3.05 (.90)	3.07 (.93)

Note. * The difference between the disciplines is significant ($p < .05$).

6. Relationship and match with PhD students

Another set of questions concerned the relationship between the supervisors and their PhD students and their match (see Table 25). Overall, the supervisors indicated that they had a good relationship with all of their PhD students; that the quality of the relationship differed for each PhD student; and that they thought that a good relationship was necessary for supervision. Supervisors from different disciplines did not differ significantly from each other regarding their responses to these statements.

Table 25. Relationship with PhD students: Mean and *SD*

Statement	Humanities	Social Sciences	Medical Sciences	Science	Total
I have a good relationship with all my PhD students.	4.39 (.68)	4.28 (.63)	4.34 (.52)	4.31 (.60)	4.33 (.59)
The quality of the relationship differs a lot for each PhD student.	3.05 (1.02)	3.02 (1.06)	3.17 (1.09)	3.04 (1.10)	3.09 (1.07)
For me, having a good relationship with a PhD student is necessary to supervise him/her well.	3.80 (.71)	3.96 (.79)	3.94 (.75)	4.00 (.81)	3.94 (.77)

Regarding their match with their PhD students, overall, the supervisors felt that they had a better match with some PhD students than with others (see Table 26). Overall, supervisors scored lower on the item about whether they find it easy to supervise PhD students who speak the same language as they do. A similar picture emerged regarding the cultural background of their PhD students. With regard to gender, most supervisors disagreed or completely disagreed with the statement that it is easier to supervise a PhD student of their own gender. We also asked supervisors how the values or approach to life of their PhD students influenced their supervision. Overall, the supervisors scored below the scale mean for this item; thus, they tended to disagree with the statement that it is easier to supervise PhD students who have the same values or approach to life as they do. With respect to the personality of their PhD students, supervisors disagreed with the statement that it is easier for them to supervise PhD students whose personality resembles theirs.

There were a few significant discipline-related differences in means on the previous statements regarding the match between PhD supervisors and their students (see Table 26). Firstly, supervisors in the Humanities were less likely to feel that they had a better match with some PhD students than with others, compared to supervisors from the Social Sciences, Medical Sciences or Science. Secondly, supervisors in the Humanities did not find it 'much easier' to supervise a PhD student with whom they share a cultural background to the same extent as supervisors in other disciplines, and supervisors in the Medical Sciences found this slightly harder than supervisors in the Social Sciences or Science. However, on average, the supervisors tended to be neutral or disagree with this statement.

Supervisors in the Humanities did not find supervising a PhD student with similar values or a similar approach to life as them as 'much easier' than supervising a student with different values or a different approach to life to the same extent as supervisors in the Social Sciences, Medical Sciences or Science. Again, however, supervisors from all four disciplines were rather neutral on average. The final significant difference was that supervisors in the Humanities did not find supervising someone with a personality that resembles theirs as 'much easier' to the same extent as supervisors in the Social Sciences, Medical Sciences or Science. On average, the former disagreed with this statement, while the latter were more neutral.

Table 26. Match: Mean and *SD* of total group and by discipline

Statement	Humanities	Social Sciences	Medical Sciences	Science	Total
I clearly sense that with some PhD students I have a better match than with others.*	3.36 (.98)	3.52 (1.01)	3.73 (.85)	3.67 (.79)	3.62 (.91)
I find it easier to supervise PhD students who speak the same language as I do.	2.37 (1.05)	2.28 (1.08)	2.53 (1.16)	2.19 (.97)	2.37 (1.09)
I find it easier to supervise PhD students who have the same cultural background as I have.**	2.34 (1.11)	2.46 (1.05)	2.79 (1.11)	2.43 (.98)	2.57 (1.08)
I find it easier to supervise PhD students who have the same gender as I have.	1.58 (.71)	1.70 (.81)	1.65 (.76)	1.70 (.70)	1.66 (.75)
I find it easier to supervise PhD students who have the same values/approach to life as I have.**	2.35 (1.11)	2.86 (1.02)	2.93 (.93)	2.82 (1.09)	2.81 (1.03)
I find it easier to supervise PhD students whose personality resembles mine.***	1.98 (.94)	2.53 (1.03)	2.58 (.93)	2.43 (.90)	2.45 (.97)

Note * The difference between the disciplines is significant ($p < .05$). ** The difference between the disciplines is significant ($p < .01$). *** The difference between the disciplines is significant ($p < .001$).

7. Supervisor availability

The survey also included a number of questions regarding the availability of the supervisor to his/her PhD students (see Table 27). We first asked supervisors how often they have appointments/meetings with individual PhD students. Almost half of the supervisors had such appointments/meetings about once a week. For one in four, it was only a little less frequent (several times a month) and for one in six it was more frequent (several times a week). The remaining supervisors had appointments about once a month or even less frequently.

Three in four supervisors in Science, and only slightly fewer in the Medical Sciences, met with individual PhD students on a weekly basis or even more frequently. In the Social Sciences, meeting so frequently was less common but still the case for almost half of the supervisors. In the Humanities, none of the supervisors reported meeting their individual PhD students several times a week, and less than one in six supervisors met their students about once a week. In this discipline, meeting once or several times a month was most common.

Table 27. On average, how often do you have an appointment/meeting with individual PhD students?

Frequency of appointments	Humanities	Social Sciences	Medical Sciences	Science	Total
Several times a week	-	8.5 (9)	16.8 (32)	26.0 (25)	14.3 (66)
About once a week	13.6 (9)	38.7 (41)	55.3 (105)	50.0 (48)	44.6 (206)
Several times a month	37.9 (25)	37.7 (40)	19.5 (37)	19.8 (19)	26.4 (122)
About once a month	40.9 (27)	12.3 (13	6.8 (13)	3.1 (3)	12.1 (56)
Less than once a month	7.6 (5)	2.8 (3)	1.6 (3)	-	2.4 (11)
Less than once in three months	-	-	-	1.0 (1)	0.2 (1)
Total	100 (66)	100 (106)	100 (190)	100 (96)	100 (462)

Supervisors scored high on the statement about their ability to respond to their PhD students' queries or requests for help within a reasonable time frame (see Table 28). Overall, the supervisors scored lower on the statement about their ability to provide their PhD students with prompt feedback whenever they submit written work. Finally, the supervisors agreed or completely agreed with a statement about their general availability to answer any questions their PhD students may have.

Supervisors from different disciplines did not differ significantly in the extent to which they agreed with the availability statements. On average, supervisors from the different disciplines agreed to a quite high extent with the statement regarding the time it takes them to respond to PhD students' queries or requests for help, as well as the statement regarding their availability to answer questions.

Table 28. Availability statements: Mean and *SD* of total group and by discipline

Statement	Humanities	Social Sciences	Medical Sciences	Science	Total
I am able to respond to my PhD students' queries or requests for help within a reasonable time frame.	4.33 (.71)	4.38 (.62)	4.37 (.63)	4.33 (.57)	4.36 (.63)
I am able to provide my PhD students with prompt feedback whenever they submit written work to me.	3.79 (1.00)	4.03 (.87)	3.79 (.97)	3.82 (.83)	3.86 (.93)
I am usually available to answer any questions my PhD students may have.	4.39 (.63)	4.33 (.70)	4.24 (.73)	4.27 (.69)	4.29.70)

8. Supervisors' academic support[1]

In addition to the general availability of supervisors to their PhD students, we asked supervisors questions concerning the academic support they provide their PhD students (see Table 29). The questions were asked separately with regard to their supervision of junior PhD students (i.e. first and second-year PhD students) and senior PhD students (i.e. third or fourth year PhD students and those who have been working on their PhD for over four years).

We found that the supervisors more often provided academic support to junior than to senior PhD students. For the total group of supervisors, this difference was significant for all items. Furthermore, the difference was also found for almost all items across the disciplines. The three types of academic support most often provided in this context were practical advice about how to plan and conduct research (4.04); helping PhD students develop good writing skills (4.00); and helping them plan and manage the different research tasks they must complete (3.85). In their supervision of senior PhD students, these were also the types of academic support that were provided most frequently. The decline in frequency is less pronounced in relation to writing skills than to other types of academic support.

We also looked at whether PhD students in different disciplines received different levels and/or types of academic support. Junior PhD students in Science received slightly more academic support than those in other disciplines, although this difference was not statistically significant. In relation to senior PhD students, the average amount of total academic support did not differ from discipline to discipline.

In terms of academic support for junior PhD students, significant differences were seen on five measures. Junior PhD students in Science more often received help with planning and managing the different research tasks they had to complete; were more often offered suggestions about how to find the resources they needed; were more often taught the technical knowledge and skills they needed to complete their research; more often had their supervisor spend time helping them learn the skills they needed to complete their research; and were more often given practical assistance when they needed help conducting their research than junior PhD students in the Humanities, Social Sciences and Medical Sciences.

Differences in academic support for senior PhD students were statistically significant on two measures. Senior PhD students in both the Social Sciences and Medical Sciences more often had their supervisors spend time helping them learn the skills they needed to complete their research than those in the Humanities or Science. Senior PhD students in the Medical Sciences were less often given practical assistance when they needed help conducting research tasks than those in the Humanities, Social Sciences and Science.

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[1] Academic, personal and autonomy support were measured with items developed by Overall, Deane & Peterson (2011). Overall, N.C., Deane, K.L., & Peterson, E.R. (2011). Promoting doctoral students' research self-efficacy: Combining academic guidance with autonomy support. *Higher Education Research & Development, 30*(6), 791-805.

Table 29. Academic support: means and standard deviations

	Humanities		Social Sciences		Medical Sciences		Science		Total	
	Junior	Senior	Junior	Senior	Junior	Senior	Junior	Senior	Junior	Senior
Helping PhD students plan and manage different research tasks they must complete.**junior	3.72 (.70)	3.12 (.73)	3.74 (.67)	3.05 (.78)	3.83 (.62)	3.07 (.69)	4.06 (.56)	3.20 (.66)	3.85 (.64)	3.10 (.71)
Helping PhD students construct deadlines to ensure that they complete tasks on time.	3.62 (.80)	3.29 (.83)	3.70 (.68)	3.30 (.86)	3.63 (.79)	3.30 (.82)	3.73 (.75)	3.30 (.79)	3.67 (.76)	3.29 (.83)
Giving PhD students practical advice about how to plan and conduct their research.	4.11 (.59)	3.41 (.86)	4.00 (.59)	3.20 (.72)	4.00 (.59)	3.20 (.79)	4.13 (.64)	3.28 (.69)	4.04 (.60)	3.24 (.77)
Offering suggestions about how they can find the resources they need.* junior	3.76 (.73)	3.12 (.89)	3.67 (.72)	2.87 (.77)	3.82 (.67)	2.97 (.83)	3.97 (.66)	3.06 (.85)	3.81 (.69)	2.98 (.84)
Giving PhD students guidance in finding relevant literature and research materials.	3.79 (.78)	3.05 (.90)	3.73 (.73)	2.92 (.80)	3.63 (.72)	2.76 (.81)	3.82 (.73)	2.92 (.81)	3.72 (.74)	2.86 (.83)
Looking for information that will help PhD students with their thesis.	3.37 (.92)	2.96 (1.13)	3.39 (.74)	3.15 (.84)	3.26 (.87)	3.02 (.82)	3.46 (.89)	3.10 (.78)	3.35 (.86)	3.06 (.87)
Teaching PhD students the technical knowledge and skills they need to complete their research.***junior	3.13 (.99)	2.52 (.93)	3.34 (.87)	2.76 (.81)	3.61 (.88)	2.81 (.84)	3.96 (.73)	2.80 (.85)	3.56 (.90)	2.75 (.85)
Spending time helping PhD students learn the skills they need to complete their research.***junior * senior	3.10 (1.02)	2.56 (.92)	3.47 (.78)	2.94 (.73)	3.54 (.85)	2.91 (.82)	3.72 (.71)	2.77 (.82)	3.50 (.85)	2.83 (.83)
Providing practical assistance when PhD students need help conducting research tasks.* junior * senior	3.00 (1.08)	2.75 (1.04)	3.32 (.85)	2.76 (.79)	3.19 (.95)	2.50 (.83)	3.41 (.88)	2.71 (.82)	3.24 (.94)	2.63 (.86)
Helping PhD students develop good writing skills (e.g. expression of ideas, grammar, structure of thesis, etc.).	3.91 (.91)	3.68 (1.07)	4.16 (.73)	3.77 (.84)	3.99 (.77)	3.77 (.84)	3.89 (.74)	3.82 (.69)	4.00 (.78)	3.75 (.85)
Junior/senior scale mean	3.55 (.57)	3.06 (.65)	3.65 (.42)	3.07 (.45)	3.65 (.46)	3.04 (.49)	3.81 (.45)	3.09 (.47)	3.67 (.48)	3.05 (.51)

* junior or * senior The difference between disciplines is significant: * = $p < .05$; ** = $p < .01$; *** $p < .001$.

9. Supervisors' personal support

The second type of support supervisors may give PhD students is personal support. Supervisors were again asked separately about how often they provide junior and senior PhD students with the different types of personal support (see Table 30). All types of personal support were given to junior PhD students often. Almost half of the supervisors stated they were friendly to, supportive of and approachable by their junior PhD students all of the time, making this the most frequent type of personal support. While asking PhD students about their personal situation, sharing personal stories about oneself and supporting PhD students when they have a conflict with a colleague were still quite common, they were among the least frequent types of support. The supervisors' responses to these items about the frequency of these types of personal support for their senior PhD students were similar.

On average, the total amount of personal support that junior and senior PhD students receive from their supervisors was about the same. The supervisors reported that asking PhD students about their personal situation; sharing personal stories about oneself; supporting them when they have a conflict with a colleague; and reassuring them that they will be able to successfully complete their research/thesis were sometimes done 'too often', while they scored other types of personal support as 'often' to 'all the time'.

There were two statistically significant differences in the means of personal support between disciplines. Supervisors in the Humanities were slightly more friendly to, supportive of and approachable by their junior students than supervisors in the other disciplines (see Table 69). They were also less likely to share personal stories about themselves with either junior or senior PhD students than supervisors in the Social Sciences, Medical Sciences and Science.

Table 30. Personal support: means and standard deviation

	Humanities		Social Sciences		Medical Sciences		Science		Total	
	Junior	Senior	Junior	Senior	Junior	Senior	Junior	Senior	Junior	Senior
Behaving warmly towards your PhD students when they discuss their research and/or any problems they are experiencing.	4.38 (.63)	4.32 (.63)	4.24 (.68)	4.16 (.70)	4.28 (.58)	4.19 (.61)	4.24 (.61)	4.13 (.68)	4.27 (.62)	4.18 (.64)
Expressing understanding and empathy when your PhD students experience difficulties.	4.41 (.59)	4.30 (.63)	4.26 (.64)	4.17 (.68)	4.17 (.61)	4.08 (.65)	4.20 (.66)	4.09 (.73)	4.23 (.62)	4.13 (.67)
Listening and responding to any concerns your PhD students have.	4.34 (.65)	4.23 (.68)	4.25 (.65)	4.21 (.65)	4.20 (.56)	4.15 (.65)	4.18 (.68)	4.13 (.74)	4.23 (.62)	4.17 (.67)
Being friendly, supportive and approachable.*junior	4.64 (.55)	4.56 (.60)	4.43 (.60)	4.37 (.61)	4.38 (.54)	4.35 (.59)	4.45 (.54)	4.42 (.58)	4.44 (.56)	4.40 (.59)
Comforting and reassuring your PhD students when they are feeling down.	4.13 (.81)	4.04 (.84)	4.07 (.73)	3.97 (.78)	4.02 (.70)	3.98 (.71)	4.00 (.80)	3.90 (.80)	4.04 (.74)	3.97 (.76)
Complimenting PhD students and making them feel good about themselves and their work.	4.17 (.68)	4.11 (.70)	4.01 (.68)	3.84 (.71)	4.02 (.68)	3.93 (.69)	4.13 (.64)	3.99 (.73)	4.06 (.67)	3.94 (.71)
Showing that you respect and value your PhD students.	4.36 (.70)	4.32 (.69)	4.25 (.65)	4.20 (.69)	4.21 (.65)	4.19 (.68)	4.34 (.61)	4.38 (.59)	4.27 (.65)	4.25 (.67)
Reassuring your PhD students that they will be able to successfully complete their research/thesis.	3.92 (.84)	3.95 (.72)	3.78 (.77)	3.78 (.76)	3.89 (.75)	3.94 (.67)	3.83 (.78)	3.92 (.81)	3.86 (.77)	3.90 (.73)
Making your PhD students feel that they have the ability to do well.	4.20 (.60)	4.09 (.61)	4.04 (.69)	3.89 (.72)	4.02 (.60)	3.95 (.62)	4.04 (.70)	4.04 (.67)	4.06 (.64)	3.97 (.65)
Asking your PhD students about their personal situation.	3.30 (.91)	3.29 (.99)	3.38 (.88)	3.31 (.86)	3.29 (.77)	3.28 (.77)	3.09 (.85)	3.11 (.83)	3.27 (.83)	3.25 (.84)
Sharing personal stories about oneself with your PhD students.**junior ***senior	2.70 (.92)	2.67 (.91)	3.14 (.83)	3.19 (.81)	3.14 (.77)	3.17 (.75)	2.94 (.83)	3.08 (.80)	3.03 (.83)	3.09 (.81)
Supporting your PhD students when they have a conflict with a colleague.	3.30 (1.04)	3.27 (.99)	3.35 (.99)	3.36 (1.01)	3.54 (.98)	3.51 (.96)	3.45 (1.06)	3.46 (1.06)	3.44 (1.00)	3.43 (1.00)
Junior/senior scale mean	3.99 (.47)	3.93 (.49)	3.93 (.49)	3.87 (.51)	3.93 (.42)	3.89 (.43)	3.91 (.48)	3.89 (.49)	3.94 (.45)	3.89 (.47)

* junior or * senior The difference between disciplines is significant: * = $p < .05$; ** = $p < .01$; *** $p < .001$.

10. Supervisors' autonomy support

The third type of support we asked supervisors about was autonomy support. Again, we asked them to rate the frequency of support for their junior and senior PhD students separately. Most of the types of autonomy support were given to both junior and senior PhD students (see Table 31 for means and standard deviations). Supervisors encouraged junior PhD students to ask questions and to be open about their own ideas more often than their senior PhD students. A number of statistically significant differences were found when comparing supervisors from different disciplines, but these were all small. Most notably, supervisors in the Humanities were more supportive of their PhD students' autonomy than supervisors in the other disciplines, although autonomy was generally supported, in different ways, at least 'often' by all supervisors.

Table 31. Autonomy support: means and standard deviations

	Humanities		Social Sciences		Medical Sciences		Science		Total	
	Junior	Senior	Junior	Senior	Junior	Senior	Junior	Senior	Junior	Senior
Encouraging your PhD students to ask questions.**junior *senior	4.40 (.64)	4.13 (.83)	4.10 (.73)	3.68 (.87)	4.22 (.67)	3.94 (.82)	4.38 (.62)	4.01 (.87)	4.25 (.67)	3.92 (.85)
Encouraging your PhD students to be open about their own ideas and any issues that concern them.*junior	4.46 (.59)	4.23 (.81)	4.22 (.63)	4.06 (.71)	4.27 (.64)	4.17 (.71)	4.44 (.63)	4.28 (.75)	4.32 (.63)	4.18 (.74)
Listening to how your PhD students would like to do things.*junior	4.38 (.63)	4.34 (.70)	4.20 (.63)	4.16 (.68)	4.09 (.61)	4.14 (.59)	4.17 (.63)	4.20 (.64)	4.17 (.62)	4.19 (.64)
Welcoming your PhD students' input into discussions and treating their ideas with respect.**junior **senior	4.65 (.51)	4.63 (.56)	4.44 (.56)	4.43 (.60)	4.32 (.63)	4.34 (.61)	4.51 (.58)	4.56 (.50)	4.43 (.60)	4.44 (.59)
Providing your PhD students with choices and options.	4.06 (.80)	4.02 (.84)	4.03 (.66)	3.97 (.69)	3.91 (.72)	3.98 (.70)	4.11 (.68)	4.16 (.69)	4.00 (.71)	4.02 (.72)
Encouraging your PhD students to work independently.***junior	4.38 (.73)	4.39 (.76)	4.17 (.79)	4.26 (.66)	4.09 (.81)	4.28 (.77)	4.17 (.69)	4.44 (.54)	4.16 (.77)	4.33 (.70)
Not pressing your own point of view.**junior ***senior	3.55 (.69)	3.73 (.70)	3.09 (.79)	3.22 (.78)	2.95 (.63)	3.19 (.64)	3.00 (.58)	3.22 (.64)	3.08 (.69)	3.28 (.70)
Giving your PhD students the main responsibility for their project.***junior	4.33 (.72)	4.43 (.81)	4.03 (.85)	4.30 (.70)	3.85 (.88)	4.21 (.69)	3.91 (.82)	4.25 (.73)	3.97 (.85)	4.27 (.72)
Junior/senior scale mean**senior	4.28 (.46)	4.24 (.51)	4.03 (.43)	4.00 (.42)	3.96 (.43)	4.03 (.42)	4.08 (.41)	4.14 (.45)	4.05 (.44)	4.08 (.45)

* junior or * senior The difference between disciplines is significant: * = $p < .05$; ** = $p < .01$; *** $p < .001$.

11. Supervisors' expectations

We also presented supervisors with a number of statements regarding their expectations of PhD students (see Table 32). Supervisors agreed or completely agreed with statements about their expectations concerning their PhD students publishing in high impact journals; that their PhD students should have at least two of papers published or accepted for publication before they submit their thesis; and that they emphasize the importance of finishing the thesis in time. Supervisors tended to disagree with statements about their PhD students publishing or having all of their papers accepted for publication before they submit their thesis and that many courses and seminars are a waste of time for PhD students. Relatively speaking, supervisors seemed to be the most neutral regarding the statement that they expect their PhD students to finish their PhD in their spare time if they do not finish it within the time of their contract.

There were a number of significant differences between supervisors from different disciplines, which primarily concerned supervisors in the Social Sciences, who held slightly lower expectations of their PhD students than supervisors in the Humanities, the Medical Sciences and Science.

Table 32. Expectations: means and standard deviations

Statement	Humanities	Social Sciences	Medical Sciences	Science	Total
I expect my PhD students to publish in high impact journals.***	3.24 (1.07)	3.43 (.99)	3.76 (.80)	3.68 (.86)	3.60 (.92)
I expect my PhD students to have all their papers published or accepted for publication before they submit their thesis.**	2.19 (1.06)	1.99 (.84)	2.37 (.93)	2.43 (.92)	2.28 (.94)
I expect my PhD students to have at least two of their papers published or accepted for publication before they submit their thesis.***	3.07 (1.22)	2.99 (1.31)	3.98 (1.10)	3.87 (1.00)	3.63 (1.23)
I expect my PhD students to finish their PhD in their spare time if they do not finish within the time of their contract.**	3.63 (1.03)	3.02 (1.04)	3.23 (1.01)	3.26 (.94)	3.24 (1.02)
I think many courses and seminars are a waste of time for PhD students.***	2.95 (.95)	2.22 (.99)	2.48 (.97)	2.42 (.91)	2.47 (.98)
I emphasize the importance of finishing the thesis in time (i.e. submitting it before the end of the contract).***	3.95 (.87)	3.52 (.87)	3.68 (.88)	4.06 (.69)	3.77 (.86)
Total***	3.29 (.59)	2.87 (.58)	3.25 (.48)	3.29 (.44)	3.18 (.54)

Note: * The difference between the disciplines is significant ($p < .05$). ** The difference between the disciplines is significant ($p < .01$). *** The difference between the disciplines is significant ($p < .001$).

12. Supervisors' satisfaction with their PhD students' performance

Supervisors were asked about their satisfaction with their PhD students' performance. Firstly, they were asked about their satisfaction with the quality of their PhD students' work. In general, they were satisfied with the quality of their PhD students' work (see Table 33). Secondly, we asked supervisors about their satisfaction with the time their PhD students take to finish their thesis. They scored lower on this statement. There were no significant differences in average agreement between supervisors from different disciplines.

Table 33. Satisfaction: means and standard deviations of total group and by discipline

Statement	Humanities	Social Sciences	Medical Sciences	Science	Total
In general, I am satisfied with the quality of my PhD students' work.	4.11 (.70)	3.94 (.69)	4.03 (.55)	3.98 (.67)	4.01 (.63)
In general, I am satisfied with the amount of time it takes my PhD students to finish their thesis.	3.60 (.84)	3.51 (.86)	3.64 (.76)	3.60 (.73)	3.60.79)

13. Supervisors' supervisory style

In order to obtain a picture of their supervisory style, we asked supervisors about the degree to which they agreed that certain characteristics described them. On average, supervisors reported that most of the characteristics described them at least 'somewhat' (Table 34, scale ranges from 1, 'Does not describe me' to 7, 'Describes me perfectly'). The terms, 'committed', 'supportive', 'collaborative' and 'friendly' described the average supervisor best. Supervisors scored lowest on 'therapeutic'.

Table 34. Would you describe yourself as …

Characteristic	Mean (SD)
Goal-oriented	5.70 (.85)
Perceptive	5.44 (.86)
Concrete	5.53 (.88)
Explicit	5.32 (1.05)
Committed	6.24 (.71)
Affirming	5.42 (.96)
Practical	5.71 (.91)
Sensitive	5.24 (1.14)
Collaborative	6.03 (.76)
Intuitive	5.19 (1.19)
Reflective	5.48 (1.00)
Responsive	5.83 (.78)
Structured	5.46 (1.12)
Evaluative	5.08 (1.02)
Friendly	6.01 (.76)
Flexible	5.67 (.93)
Prescriptive	4.01 (1.28)
Didactic	4.98 (1.15)
Thorough	5.42 (1.05)
Focused	5.54 (.96)
Creative	5.76 (.93)
Supportive	6.16 (.74)
Open	5.93 (.83)
Realistic	5.66 (.84)
Resourceful	5.55 (.89)
Invested	5.30 (1.06)
Facilitative	5.53 (.93)
Therapeutic	3.93 (1.37)
Positive	5.89 (.82)
Trusting	5.77 (.88)
Informative	5.60 (.79)
Humorous	5.31 (1.05)
Warm	5.53 (.97)

The characteristics were combined into four categories to create the following four types of supervisory styles: supportive, structured, creative and committed (see Table 35). Mean scores on all supervisory styles indicated that they would describe the average supervisor's supervisory style. There were no significant differences between disciplines.

Table 35. Means (and SD) per supervisory style

Type	Humanities	Social Sciences	Medical Sciences	Science	Total
Supportive (affirming, sensitive, friendly, supportive, positive, trusting, warm and collaborative)	5.79 (.72)	5.76 (.58)	5.75 (.58)	5.76 (.56)	5.76 (.60)
Structured (goal-oriented, concrete, explicit, practical, structured, thorough, focused, evaluative, facilitative, informative)	5.52 (.69)	5.49 (.53)	5.48 (.56)	5.44 (.61)	5.49 (.59)
Creative (intuitive, creative, humorous, flexible, resourceful, open)	5.50 (.65)	5.54 (.66)	5.55 (.63)	5.67 (.57)	5.57 (.63)
Committed (invested, committed, responsive, perceptive, reflective)	5.78 (.65)	5.67 (.57)	5.58 (.60)	5.72 (.50)	5.66 (.58)

14. Problems supervisors experience

The survey also addressed problems that supervisors experience in relation to their supervision of PhD students (see Table 36). We listed a number of problems and asked supervisors to report how often they experienced them. The two problems that the supervisors most often experienced were PhD students who had trouble with academic writing and PhD students who had problems related to high work pressure and/or stress. There were a number of statistically significant differences between disciplines. Supervisors in Science were more likely or slightly more likely to experience communication problems with PhD students due to language differences; to have PhD students who had trouble with academic writing or presenting in English; to have PhD students who had problematic social skills or insufficient planning/project management skills; to have PhD students experience problems due to cultural differences; or to have PhD students who do not get along with their colleagues or do not fit well into the group/department than supervisors in the other disciplines. Supervisors in the Humanities were slightly less likely to supervise unmotivated PhD students than those in other disciplines.

Table 36. Problems: means (and SD)

	Humanities	Social Sciences	Medical Sciences	Science	Total
Communication problems with PhD students due to language differences**	1.84 (.84)	1.94 (.92)	2.07 (.87)	2.33 (.94)	2.07 (.90)
PhD students who have trouble with academic writing***	3.02 (.83)	3.35 (.86)	3.38 (.74)	3.66 (.74)	3.38 (.80)
PhD students who have trouble presenting in English***	2.52 (.84)	2.54 (.92)	2.86 (.72)	3.07 (.83)	2.79 (.83)
PhD students who have insufficient research skills	2.56 (.75)	2.59 (.96)	2.70 (.74)	2.77 (.80)	2.68 (.82)
PhD students who have problematic social skills*	2.12 (.85)	2.12 (.86)	2.27 (.72)	2.46 (.74)	2.26 (.79)
PhD students who have insufficient planning/project management skills*	2.72 (.79)	2.89 (.81)	2.99 (.74)	3.11 (.78)	2.96 (.78)
PhD students who have problems related to high work pressure and/or stress	3.08 (.73)	3.10 (.82)	2.97 (.77)	2.90 (.83)	3.00 (.79)
PhD students with personal issues	2.87 (.85)	2.80 (.89)	2.68 (.79)	2.78 (.84)	2.75 (.84)
Unmotivated PhD students**	1.52 (.67)	1.85 (.89)	1.89 (.75)	1.95 (.71)	1.85 (.79)
Problems due to cultural differences***	1.72 (.75)	1.90 (.94)	1.91 (.81)	2.32 (.91)	1.96 (.87)
PhD students who do not get along with their colleagues*	1.71 (.75)	1.78 (.83)	1.89 (.77)	2.05 (.69)	1.87 (.77)
PhD students who do not fit well into the group/department	1.73 (.79)	1.74 (.82)	1.83 (.71)	1.97 (.73)	1.82 (.77)
A bad 'match' between you and your PhD student*	1.58 (.69)	1.74 (.77)	1.83 (.87)	1.90 (.73)	1.79 (.76)
Disagreement within the supervision team**	1.55 (.73)	1.77 (.76)	1.90 (.72)	1.87 (.72)	1.82 (.74)

Note: * The difference between the disciplines is significant ($p < .05$). ** The difference between the disciplines is significant ($p < .01$). *** The difference between the disciplines is significant ($p < .001$).

We also focused on one specific problem: that of dropout. We first asked supervisors how often they had experienced dropout. Here, it did not matter whether a PhD student quit voluntarily or involuntarily. Half of the supervisors had never experienced dropout (see Table 37). Those who had experienced dropout, were most likely to have experienced it only once or twice. Supervisors in the Medical Sciences were slightly more likely to have experienced dropout more than twice, compared with supervisors in the Humanities, Social Sciences and in Science.

Table 37. Dropout

Answer category	Humanities	Social Sciences	Medical Sciences	Science	Total
Never	57.1 (36)	49.5 (50)	52.4 (99)	51.6 (49)	52.4
Once or twice	39.7 (25)	42.6 (43)	37.0 (70)	43.2 (41)	39.6
More than twice	1.6 (1)	5.9 (6)	9.5 (18)	5.3 (5)	6.9
More than five times	1.6 (1)	-	0.5 (1)	-	0.4
More than ten times	-	1.0 (1)	-	-	0.2
I don't know/remember	-	1.0 (1)	0.5 (1)	-	0.4

In 20 percent of cases, personal circumstances were the, or one of the, reason(s) for dropout (see Table 38). Insufficient progress due to insufficient skills and not liking the work were also relatively common reasons. A bad fit with the project, with the department/research group and with the supervisor(s) were very infrequent reasons for dropout. Personal circumstances were more likely or slightly more likely to be a reason, and insufficient progress due to insufficient skills was less likely to be a reason for dropout among PhD students of supervisors in Science than among PhD students of the supervisors in the Humanities, Social Sciences and Medical Sciences.

Table 38. Reason for dropout

Reason	Humanities	Social Sciences	Medical Sciences	Science	Total
Doing a PhD was just not for them/they did not like the work	19.7 (13)	15.1 (16)	16.7 (32)	14.6 (14)	15.9
Insufficient progress due to too many (practical) setbacks in the project	1.5 (1)	7.5 (8)	10.4 (20)	5.2 (5)	7.2
Insufficient progress due to insufficient skills	18.2 (12)	15.1 (16)	19.3 (37)	10.4 (10)	16.1
Bad fit with the project	1.5 (1)	1.9 (2)	2.1 (4)	3.1(3)	2.1
Bad fit with the department/research group	-	0.9 (1)	3.1 (6)	1.0 (1)	1.7
Bad fit with the supervisor(s)	-	2.8 (3)	2.6 (5)	3.1 (3)	2.3
Personal circumstances	15.2 (10)	18.9 (20)	20.3 (39)	24.0 (23)	19.7
He/she obtained another job	7.6 (5)	3.8 (4)	7.8 (15)	9.4 (9)	7.0
Other, namely	3.0 (2)	7.5 (8)	6.3 (12)	6.3 (6)	5.9

15. Career preparation

We also enquired about supervisors' awareness of and actions regarding their PhD students' careers (preparation). We asked whether their former PhD students who had gained their doctorate now worked within or outside academia. One-third of supervisors reported that their former PhD students mostly worked within academia (see Table 39), while one-quarter reported that their former PhD students mostly worked outside academia. For another quarter, the share of PhD students who now work within academia and those who now work outside academia was about the same. The remaining supervisors reported that they did not know whether their former PhD students currently work mostly within or outside academia. Compared to supervisors in the Medical Sciences and Science, supervisors in the Humanities and Social Sciences more often reported that their former PhD students mostly work outside academia. They were also more likely to report that they did not know what most of their former PhD students were doing.

Table 39. Do most of the PhD students you have supervised who have finished currently work within or outside academia? – %

Answer category	Humanities	Social Sciences	Medical Sciences	Science	Total
Mostly within	40.0 (24)	37.6 (35)	30.9 (56)	30.4 (28)	34.0 (146)
Mostly outside	13.3 (8)	19.4 (18)	29.8 (54)	33.7 (31)	25.8 (111)
About the same	28.3 (17)	24.7 (23)	27.6 (50)	25.0 (23)	26.5 (114)
I don't know	18.3 (11)	18.3 (17)	11.6 (21)	10.9 (10)	13.7 (59)

The supervisors were asked a similar question with regard to the aspirations of their current PhD students. Two-fifths of the supervisors reported that most of their current PhD students aspired to a career in academia (see Table 40). One in six supervisors stated that the majority of their current PhD students aspired to a career outside academia, while one-third reported that the numbers of PhD students who aspired to a career within and outside academia were similar. Almost one in ten supervisors reported that they did not know how to answer this question. As with the careers of their former PhD students, supervisors in the Humanities and Social Sciences more often reported that their current PhD students mostly aspired to a career within academia than did supervisors in the Medical Sciences and Science. Supervisors in the Medical Sciences were more likely than supervisors in other disciplines to not know about the career aspirations of their current PhD students.

Career aspirations

Table 40. Do most of your current PhD students aspire to a career within or outside academia? – %

Answer category	Humanities	Social Sciences	Medical Sciences	Science	Total
Mostly within	49.2 (30)	53.6 (52)	35.1 (66)	34.0 (32)	41.4 (184)
Mostly outside	8.2 (5)	9.3 (9)	19.1 (36)	22.3 (21)	16.0 (71)
About the same	34.4 (21)	29.9 (29)	34.6 (65)	37.2 (35)	33.8 (150)
I don't know	8.2 (5)	7.2 (7)	11.2 (21)	6.4 (6)	8.8 (39)

In terms of their actions, we asked supervisors whether they had explicitly asked their PhD students about their career plans after their PhDs. We asked this question separately with regard to junior and senior PhD students. For the junior PhD students, just over half of the supervisors agreed or completely agreed with the statement that they explicitly ask students about their career plans after their PhD (see Table 41).

Compared to PhD supervisors in the Social Sciences, Medical Sciences and Science, those in the Humanities were less likely to disagree and more likely to agree or completely agree.

With regard to the career plans of senior PhD students, supervisors scored high on the statement that they asked these students about their career plans after their PhD. Interestingly, in this case, supervisors in the Humanities, and to a lesser extent those in the Social Sciences, were slightly less likely to agree or completely agree with the statement.

Table 41. I explicitly ask my PhD students about their career plans after their PhD

Answer category	Humanities	Social Sciences	Medical Sciences	Science	Total
I explicitly ask my junior PhD students (years 1 and 2) about their career plans after their PhD.**	3.87 (.89)	3.59 (1.09)	3.42 (1.05)	3.32 (1.18)	3.51 (1.08)
I explicitly ask my senior PhD students (years 3 and 4) about their career plans after their PhD.	4.35 (.70)	4.39 (.68)	4.42 (.61)	4.43 (.70)	4.41 (.66)

Note: * The difference between the disciplines is significant ($p < .05$). ** The difference between the disciplines is significant ($p < .01$). *** The difference between the disciplines is significant ($p < .001$).

We were also interested in the expectations of the supervisors for their PhD students and whether or not their expectations depended on the career plans of their students. The supervisors scored average on the statement that the expectations they had were the same for all their PhD students, irrespective of their career plans (see Table 42). When comparing the responses based on disciplines, supervisors from the Social Sciences stood out. Although they were also more likely to be neutral regarding this statement, they were less likely to agree and more likely to disagree that they hold similar expectations for all of their students than supervisors in the Humanities, Medical Sciences and Science.

We then asked supervisors whether they consider it to be one of their responsibilities to help their PhD students make career choices. Again, the supervisors generally agreed with this statement and there were no striking differences between supervisors from different disciplines.

Table 42. The expectations I have for my PhD students (e.g. kind of journals they publish in, kind of skills they acquire) are the same for all my PhD students, regardless of their career plans

Answer category	Humanities	Social Sciences	Medical Sciences	Science	Total
The expectations I have for my PhD students (e.g. kind of journals they publish in, kind of skills they acquire) are the same for all my PhD students, regardless of their career plans.**	3.25 (1.09)	3.01 (1.13)	3.39 (1.06)	3.52 (1.04)	3.30 (1.10)
As a supervisor, it is one of my responsibilities to help my PhD students make their career choices.	3.86(.88)	3.79 (.82)	3.83 (.81)	3.85 (.86)	3.82 (.84)

Note: * The difference between the disciplines is significant ($p < .05$). ** The difference between the disciplines is significant ($p < .01$). *** The difference between the disciplines is significant ($p < .001$).

Inside

We asked supervisors a number of questions about careers in academia, before asking the same questions about careers outside academia (see Tables 43, 44, 45). We first asked supervisors to judge current job prospects in academia for PhD holders in their field. In general, the supervisors were rather pessimistic, with a mean score below the scale mean. As might be expected, supervisors from different disciplines differed regarding current job prospects. Supervisors in the Humanities were clearly the most pessimistic about the job prospects for PhD holders in their field. Supervisors in the Social Sciences, in contrast, were clearly the most positive (Table 43).

In relation to current job prospects in academia, we then asked supervisors about their familiarity with career opportunities in their field and in the Netherlands in particular (Table 44). On average, the supervisors reported being quite familiar with the career opportunities. Compared to supervisors in Science,

the Medical Sciences and Social Sciences, supervisors in the Humanities were more likely to report being quite or very familiar with the academic career opportunities in their field in the Netherlands.

The supervisors reported being less familiar with academic career opportunities in their field outside the Netherlands (see Table 44). On average, however, they were still 'somewhat' or 'quite familiar' with career opportunities in academia outside the Netherlands.

We also asked supervisors to what extent they encouraged their PhD students to pursue a career in academia (see Table 45). Supervisors tended to agree with the statement about encouraging students to stay in academia. Although differences between supervisors from different disciplines were not large, supervisors in the Social Sciences were slightly more likely to agree or completely agree that they encouraged their PhD students to pursue a career in academia.

We then asked the supervisors whether they considered the topics of most of their PhD students' research useful for a career in academia (see Table 45). In general, the supervisors agreed that this was the case. Supervisors in the discipline of Science stood out in the sense that they were more likely than those in the other disciplines to be neutral regarding this statement. The supervisors in the Humanities were most likely to consider the topics of the majority of their PhD students' research useful.

We also asked whether they thought the skills their PhD students learned during the PhD trajectory would be useful for a career in academia. Almost all of the supervisors agreed or completely agreed that this was the case. There were no striking differences between supervisors from different disciplines.

We also asked to what extent they had a useful international network in academia that could assist their PhD students find a job. Overall, the supervisors agreed or completely agreed. Supervisors in the discipline of Science were more likely than supervisors in the other disciplines to agree or completely agree with the statement.

Furthermore, we asked supervisors to judge whether there were sufficient job opportunities in academia for most of the PhD students who wished to have a career in academia. Half of the total group of supervisors disagreed or completely disagreed. The responses differed from discipline to discipline, with supervisors in the Humanities being most likely to disagree or completely disagree, and those in the Social Sciences most likely to agree or completely agree.

We also asked whether supervisors considered it their responsibility to prepare their PhD students for a career in academia. The supervisors tended to agree or completely agree that this was one of their responsibilities. The responses differed slightly, but not substantially, from discipline to discipline.

The supervisors were also asked whether they thought that undertaking research-based activities was sufficient to prepare PhD students for a career in academia after their PhD. They tended to disagree with this statement, with supervisors in the Humanities more likely than those in the Social Sciences, Medical Sciences and Sciences to completely disagree.

The final statement regarding PhD students remaining in academia was about whether PhD students who wish to stay in academia need courses in transferable skills. The supervisors scored average on this statement. There were considerable differences in responses from supervisors across disciplines: supervisors in Science, and to a lesser extent those in the Medical Sciences, were more likely than those in the Humanities and Social Sciences to judge courses in transferable skills necessary for PhD students who wish to stay in academia.

Outside

The supervisors then responded to the same statements regarding a career outside academia. First, they were asked what they thought of the current job prospects outside academia for PhD holders in their field. The supervisors scored slightly above average on this statement. Supervisors in the Humanities were more negative about the job prospects outside academia than supervisors in the Medical Sciences, Science and the Social Sciences, with the latter being the most positive.

In relation to familiarity with the career opportunities in their field outside academia in the Netherlands, the supervisors scored average. Supervisors in the discipline of Science and, to a lesser extent, those in the Humanities, were more likely than those in the Social Sciences and Medical Sciences to be 'quite' or 'very familiar' with the career opportunities in their field outside academia in the Netherlands.

On average, supervisors were less familiar with the career opportunities in their field outside academia and beyond the Netherlands. Supervisors in Science and the Humanities were more likely than those in the Social Sciences and Medical Sciences to report being 'quite' or 'very familiar' with the career opportunities in their field outside academia and the Netherlands.

The supervisors were then asked whether they encouraged their PhD students to pursue a career outside academia. They indicated that they did so. Supervisors in the Humanities were more likely to encourage their PhD students to also pursue a career outside academia than those in the Social Sciences, Medical Sciences and Science.

Most of the supervisors agreed or completely agreed with the statement that the topics of most of their PhD students' research were useful for a career outside academia. Supervisors in the Humanities were less likely than their counterparts in the other disciplines to agree or completely agree that the topics of most of their PhD students' research were useful for a career outside academia.

The supervisors scored slightly above average on the statement that the skills their PhD students learned during their PhD trajectory were useful for a career outside academia. Supervisors in the discipline of Science, and to a lesser extent those in the Humanities, were more likely to judge the skills their PhD students learned during the PhD trajectory to be useful for a career outside academia than supervisors in the Social Sciences or Medical Sciences. Nevertheless, even in the Social Sciences and Medical Sciences, a lion's share of supervisors agreed or completely agreed with the statement.

The supervisors were less positive about the usefulness of their international network outside academia being able to assist their PhD students to find a job. On average, supervisors in the discipline of Science considered their international network outside academia to be slightly more useful than supervisors in the Humanities, Social Sciences and Medical Sciences.

The supervisors were then asked whether they thought that there were sufficient job opportunities outside academia for all PhD students in their field who want to have such a career. Supervisors scored somewhat above average on this statement. Supervisors in the discipline of Science were most likely, and those in the Humanities were least likely, to think that there were sufficient job opportunities outside academia in their field for all PhD students who wished to have such a career.

The supervisors scored somewhat below the scale mean score on the statement about the extent to which they considered it one of their responsibilities to prepare their PhD students for a career outside academia. Supervisors in the discipline of Science were most likely to consider preparing their PhD students for a career outside academia to be their responsibility.

The supervisors scored lower on the statement that doing research-based activities is sufficient to prepare students for a career outside academia. There were only minor differences in answers from discipline to discipline.

The supervisors scored slightly above average on the statement regarding PhD students who wish to have a career outside academia needing courses in transferable skills. There was little difference between disciplines regarding this statement.

In versus outside: means and standard deviations

We then compared the means on statements regarding a career in academia to those regarding a career outside academia. We found that, on average, supervisors were considerably more positive about job prospects for PhD holders in their field outside academia rather than in it. On average, and depending on

the discipline, the job prospects in academia were considered to be 'bad' or 'neither good nor bad', whereas those outside academia were considered to be 'neutral' or 'good'.

With regard to the familiarity of supervisors with career opportunities in and outside academia and in or outside the Netherlands, it was observed that, on average, and irrespective of their discipline, supervisors were more familiar with career opportunities in rather than outside academia, and more familiar with career opportunities in rather than outside the Netherlands.

Furthermore, supervisors seem to be equally likely to encourage their PhD students to pursue a career in or outside academia (see Table 45). The supervisors generally judged the topics of most of their PhD students' research to be slightly more useful for a career in academia rather than for a career outside academia. The same was found for the skills students learn during their PhD trajectory. Moreover, supervisors considered their international networks in academia more useful in assisting their PhD students to find a job in academia than their international network outside academia in relation to a career outside. However, supervisors from different disciplines differed slightly in their average judgement of the usefulness of their international network in academia, with those in the discipline of Science being most positive.

We also observed that supervisors considered job opportunities outside academia to be better than those in academia. There were, however, differences in the average levels of agreement from discipline to discipline. Furthermore, the supervisors were slightly more likely to consider preparing their PhD students for a career in rather than outside academia to be one of their tasks. On average, the supervisors did not agree that doing research-based activities was sufficient to prepare their students for any kind of career after their PhD. One final observation is that supervisors were slightly more likely to deem courses in transferable skills as necessary for PhD students who wish to have career outside rather than in academia.

Table 43. Comparison of means on statements regarding job prospects

	In					Outside				
Statement	Total	Humanities	Social Sciences	Medical Sciences	Science	Total	Humanities	Social Sciences	Medical Sciences	Science
What do you think about the current job prospects in/outside academia for PhD holders in your field?***inside ***outside	2.73 (1.10)	2.19 (1.05)	3.10 (.85)	2.70 (1.14)	2.75 (1.14)	3.91 (1.06)	3.47 (1.29)	4.13 (.84)	3.85 (1.01)	4.08 (1.09)

Note: Significant differences between disciplines with * $p < .05$; ** $p < .01$; *** $p < .001$. Scale: 1 (very bad) to 5 (very good).

Table 44. Comparison of means on statements regarding familiarity with career opportunities

	In					Outside				
Statement	Total	Humanities	Social Sciences	Medical Sciences	Science	Total	Humanities	Social Sciences	Medical Sciences	Science
To what extent are you familiar with the career opportunities in your field regarding a career in/outside academia in the Netherlands?**inside	3.95 (.80)	4.21 (.68)	3.79 (.82)	3.88 (.82)	4.07 (.77)	3.20 (.99)	3.11 (1.09)	3.07 (1.00)	3.16 (.93)	3.42 (1.01)
To what extent are you familiar with the career opportunities in your field regarding a career in/outside academia outside the Netherlands? ***inside ***outside	3.39 (1.02)	3.84 (1.03)	3.30 (.92)	3.07 (1.04)	3.82 (.81)	2.74 (1.00)	2.78 (1.14)	2.57 (.93)	2.61 (.95)	3.09 (.92)

Note: Significant differences between disciplines with * $p < .05$; ** $p < .01$; *** $p < .001$. Scale: 1 (not at all familiar) to 5 (very familiar).

Table 45. Comparison of means (in and outside academia) of other statements

	In					Outside				
Statement	Total	Humanities	Social Sciences	Medical Sciences	Science	Total	Humanities	Social Sciences	Medical Sciences	Science
I encourage my PhD students to pursue a career in/outside academia.	3.36 (.72)	3.38 (.77)	3.41 (.73)	3.31 (.67)	3.37 (.75)	3.45 (.80)	3.58 (.90)	3.33 (.86)	3.45 (.75)	3.49 (.78)
The topics of most of my PhD students' research are useful for a career in/outside academia.	3.97 (.64)	4.05 (.63)	4.01 (.63)	3.93 (.61)	3.92 (.70)	3.65 (.76)	3.59 (.80)	3.79 (.68)	3.57 (.74)	3.68 (.82)
The skills my PhD students learn during the PhD trajectory are useful for a career in/outside academia.	4.18 (.56)	4.22 (.61)	4.26 (.51)	4.12 (.58)	4.14 (.53)	3.88 (.66)	3.98 (.64)	3.77 (.76)	3.84 (.65)	3.99 (.55)
I have a useful international network in/outside academia that can help my PhD students to find a job. *inside	3.69 (.90)	3.79 (.94)	3.62 (.93)	3.58 (.93)	3.91 (.72)	2.82 (1.01)	2.81 (1.07)	2.71 (1.05)	2.80 (.96)	2.95 (.98)
In my field, there are sufficient job opportunities in/outside academia for most of the PhD students who want to have a career in/outside academia.***inside ***outside	2.53 (.99)	2.06 (.95)	2.90 (.92)	2.54 (.99)	2.41 (.94)	3.43 (.88)	2.95 (.99)	3.59 (.89)	3.36 (.78)	3.71 (.87)
As a supervisor, it is one of my responsibilities to prepare my PhD students for a career in/outside academia.	3.48 (.88)	3.57 (.93)	3.65 (.88)	3.36 (.85)	3.48 (.86)	3.33 (.89)	3.30 (1.00)	3.17 (.94)	3.35 (.83)	3.49 (.86)
Doing research-based activities is sufficient to prepare my students for a career after their PhD in/outside academia. **outside	2.52 (.93)	2.35 (.99)	2.54 (.86)	2.60 (.92)	2.51 (.98)	2.43 (.92)	2.21 (.99)	2.28 (.88)	2.59 (.86)	2.42 (.96)
PhD students who wish to have a career in/outside academia need courses in transferable skills.***inside **outside	3.29 (.90)	2.94 (.92)	3.15 (.84)	3.35 (.87)	3.58 (.88)	3.50 (.92)	3.42 (.95)	3.34 (.95)	3.43 (.90)	3.81 (.84)

Note: Significant differences between disciplines with * $p < .05$; ** $p < .01$; *** $p < .001$. Scale: 1 (completely disagree) to 5 (completely agree).

16. Supervision training and supervision self-efficacy

Another part of the survey inquired into supervision training and the supervisors' self-efficacy. We first asked the supervisors whether they had ever taken a course or workshop in supervision. One-third of supervisors reported never having received/participated in any kind of training (see Table 46). One in ten had taken a course or workshop in supervision that was related to supervising Bachelor's and/or Master's students but not PhD students. Half of the supervisors had taken one or more courses and/or workshops that were specifically related to doctoral supervision. Compared to supervisors in the Medical Sciences and Science, supervisors in the Humanities and Social Sciences were more likely to have never completed a course or workshop in supervision. Supervisors in Science were most likely to have completed more than one workshop(s) or course(s).

Workshop

Table 46. Have you ever taken a course or workshop in supervision at the UG or elsewhere?

Answer category	Humanities	Social Sciences	Medical Sciences	Science	Total
No, never	40.6	44.9	26.7	29.0	33.4 (149)
Only about Bachelor's and/or Master's student supervision	6.3	9.2	9.6	10.8	9.2 (41)
I took a workshop on doctoral supervision	20.3	13.3	19.8	14.0	17.0 (76)
I took a course on doctoral supervision	14.1	17.3	22.5	15.1	18.6 (83)
I took more than one workshop or course on doctoral supervision	15.6	9.2	18.2	28.0	17.9 (80)
I don't know/remember	3.1	6.1	3.2	3.2	3.8 (17)

Three-quarters of the supervisors who had participated in a course or workshop had found it quite or even very useful (see Table 47). Supervisors from different disciplines did not differ much in their judgement of the general usefulness of the courses and/or workshops they had taken.

Table 47. How useful was this workshop or course? If you took more than one, please indicate how useful you found them in general.

Answer category	Humanities	Social Sciences	Medical Sciences	Science	Total
Not useful at all	-	-	0.9	-	.4 (1)
Not so useful	9.4	7.9	2.7	7.5	5.9 (14)
Neutral	18.8	13.2	17.7	18.9	17.2 (41)
Quite useful	46.9	44.7	53.1	35.8	47.1 (112)
Very useful	25.0	31.6	25.7	37.7	29.0 (69)
I don't know/remember	-	2.6	-	-	.4 (1)

To gain an idea of their self-efficacy, we asked the supervisors to rate how competent they felt regarding their skills in a number of areas, such as handling group dynamics and preparing PhD students for the future. On average, the supervisors considered themselves to be 'quite competent' to 'very competent' at building effective relationships and motivating PhD students when they feel they are stuck or when they face practical setbacks (see Table 48). On all other aspects, the average scores were between 'neutral' and 'quite competent'. There were relatively small differences, but in three cases there were statistically significant differences in the average perceived competence of supervisors from different disciplines.

Table 48. Self-efficacy

Please indicate how competent you feel regarding your skills in the following aspects. If an aspect does not apply to your situation as a supervisor, you can answer 'not applicable'.

Statement	Humanities	Social Sciences	Medical Sciences	Sciences	Total
Adequate recruitment and selection of PhD students**	4.05 (.83)	3.74 (.72)	3.62 (.75)	3.85 (.79)	3.77 (.78)
Building effective relationships (e.g. establishing communication, discussing expectations)	4.28 (.52)	4.15 (.57)	4.19 (.62)	4.25 (.61)	4.21 (.60)
Dealing with intercultural differences in the PhD student-supervisor relationship**	4.02(.76)	3.67 (.80)	3.73 (.80)	3.98 (.72)	3.82 (.79)
Handling group dynamics*	3.82(.58)	3.58(.75)	3.75 (.78)	3.92 (.70)	3.77 (.74)
Motivating PhD students when they feel stuck or when they face practical setbacks	4.21(.55)	4.14 (.70)	4.18 (.60)	4.21 (.59)	4.19 (.61)
Dealing with PhD students who have insufficient skills (e.g. writing or research skills)	3.57(.83)	3.57 (.83)	3.45 (.77)	3.66 (.68)	3.54 (.78)
Project management as a supervisor (e.g. identifying and achieving milestones, assessing progress)	3.95(.64)	3.81 (.75)	3.90 (.79)	3.97 (.74)	3.91 (.76)
Preparing PhD students for the future (e.g. career mentoring, professional skills development)	3.53(.72)	3.45 (.76)	3.60 (.79)	3.72 (.67)	3.59 (.75)
Correctly informing PhD students about the roles and regulations surrounding PhD trajectories at the UG	3.66(.89)	3.40 (.87)	3.63 (.88)	3.76 (.91)	3.60 (.89)

Note: Significant differences between disciplines with * $p < .05$; ** $p < .01$.

17. Perceived support by Graduate School

Another aspect on which we aimed to shed some light was the supervisors' perceived degree and type(s) of support from the Graduate School most relevant to their PhD students. Two out of five supervisors felt that the Graduate School of their PhD students supported them a lot in providing information about the rules and regulations associated with the PhD trajectory, making this the most frequently received type of support according to the supervisors (see Table 49). For all four types of support distinguished, more than two-thirds of the supervisors reported that the relevant Graduate School supported them at least 'somewhat'. Just under one-third of supervisors reported not receiving support from the Graduate School at all, while support in the case of problems, for example with their PhD students or with funding, was the least mentioned type of support.

Table 49 presents the perceived support per Graduate School[2]. The Graduate School of Behavioural and Social Sciences stands out: with the exception of providing information about the rules and regulations associated with the PhD trajectory, on average, supervisors of PhD students in this Graduate School reported not receiving as much support from their Graduate School as did supervisors of PhD students from other Graduate Schools. Supervisors who predominantly supervised PhD students belonging to the Graduate School of Economics and Business, in contrast, were considerably more likely to report receiving a lot of support in relation to each type, compared to supervisors with a majority of PhD students belonging to another Graduate School.

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[2] Please note that only the Graduate Schools with more than 15 respondents were included in this table.

Table 49. Perceived support by the different Graduate Schools

To what extent does the Graduate School that most of your PhD students belong to support you in your task as a PhD supervisor?

	Sosc			FEB			Hum			Med			FSE			Total		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Providing information about the rules and regulations surrounding the PhD trajectory.	12.5	52.1	35.4	13.3	26.7	60.0	10.0	45.0	45.0	10.8	56.9	32.3	14.9	44.8	40.2	11.8	48.8	39.5
Keeping track of my PhD students' progress.	33.3	61.9	4.8	18.8	31.3	50.0	17.6	61.8	20.6	25.9	54.9	19.1	16.9	56.6	26.5	22.5	54.9	22.5
Supporting me in the case of problems (e.g. problems with PhD students, procedures, or funding).	51.4	37.8	10.8	22.6	38.7	38.7	21.9	56.3	21.9	29.4	55.1	15.4	31.9	45.8	22.2	29.3	48.7	22.0
Offering courses, workshops or other events that are useful for supervisors.	26.3	57.9	15.8	25.0	39.3	35.7	33.3	41.7	25.0	13.6	59.3	27.2	11.4	55.7	32.9	17.4	55.1	27.5

Note. 1 = not at all, 2 = somewhat, and 3 = a lot.

18. Supervisors' perceptions of the PhD Scholarship Programme

We also presented the supervisors with a number of statements regarding the PhD Scholarship Programme, which started at the University of Groningen in September 2016. We began by asking them how familiar they were with the aims and conditions surrounding the PhD Scholarship Programme (PSP). One in five supervisors reported not being familiar with the aims and conditions of the PSP at all; one in six were barely familiar; and the remaining three in five supervisors were 'somewhat', 'quite' or even 'very familiar' with the aims and conditions (see Table 50). With half, or more than half, of the supervisors reporting being 'barely' or 'not at all familiar' with the aims and conditions surrounding the PSP, supervisors who had PhD students in Medical Sciences and those in the Social Sciences generally were more likely to be less familiar with the aims and conditions of the PSP than supervisors in other disciplines.

Table 50. Familiarity with PhD scholarship programme

Statement	Humanities	Social Sciences	Medical Sciences	Science	Total
How familiar are you with the aims and conditions surrounding the PhD Scholarship Programme that started in September 2016 at the University of Groningen?	3.02 (1.26)	2.60 (1.31)	2.74 (1.22)	2.93 (1.33)	2.80 (1.28)

The supervisors' responses to nine different statements regarding the PSP, as well as their average agreement, is shown in Table 51. In all cases, at least one in five supervisors neither agreed nor disagreed with the statement. On average, supervisors were more likely to agree than disagree with the statements that a PhD scholarship is an attractive option if you want to pursue a PhD; that a PhD scholarship is especially attractive for international students; that it is an attractive option for highly talented students; that it is only an attractive option if you cannot obtain an employed position; that it offers a useful opportunity to move smoothly from a Master's degree to PhD track; and that because PhD scholarship students apply with their own research proposal, they obtain a good impression of the prospective PhD student's quality. However, mean scores were often close to neutral.

The supervisors were generally more likely to disagree than agree with the statements that a PhD scholarship offers more opportunity for PhD students to do curiosity-driven research than an employed position; that PhD scholarship students will finish faster because their intrinsic motivation is higher; and that it is problematic for supervisors that PhD scholarship students are allowed to choose their own work hours and location. Again, most mean scores were close to neutral, with supervisors having the strongest opinions about the statement regarding the intrinsic motivation of PhD scholarship students.

Table 51 presents the mean scores and standard deviations of all the disciplines separately, according to Graduate School. Supervisors with PhD students belonging to the Graduate School for the Humanities were more likely to view the PhD scholarship as an attractive option for anyone wanting to pursue a PhD; to consider it especially attractive for international students and especially attractive for highly talented students; and less likely to consider it problematic that PhD scholarship students are allowed to choose their own work hours and location, compared to supervisors with PhD students from other Graduate Schools. Supervisors whose PhD students belonged to the Graduate School of Behavioural and Social Sciences were more likely than others to view the PhD scholarship as an attractive option only when the PhD candidate cannot obtain an employed position.

Table 51. Means and standard deviations of agreement with statements – by Graduate School

Statement	Sosc	FEB	Hum	Med	FSE	Total
A PhD scholarship is an attractive option if you want to pursue a PhD.***	3.14 (.97)	3.55 (1.10)	3.93 (.80)	3.25 (1.08)	3.60 (.95)	3.44 (1.06)
A PhD scholarship is especially attractive for international students.	3.15 (.99)	3.45 (.89)	3.85 (.97)	3.39 (.92)	3.58 (.96)	3.47 (.96)
A PhD scholarship is an attractive option for highly talented students.***	2.83 (1.04)	3.25 (1.12)	3.77 (.86)	3.02 (1.24)	3.43 (1.06)	3.19 (1.19)
A PhD scholarship is only an attractive option if you cannot obtain an employed position.*	3.50 (1.16)	3.40 (1.14)	3.00 (1.07)	3.06 (1.07)	3.21 (1.24)	3.16 (1.16)
The PhD scholarship offers a useful opportunity to move smoothly from Master's degree to PhD track.	3.36 (.93)	3.32 (1.00)	3.64 (.87)	3.30 (1.09)	3.27 (.91)	3.33 (1.01)
A PhD scholarship offers more opportunity for PhD students to do curiosity-driven research than an employed position.	2.48 (1.18)	2.16 (.77)	2.82 (1.02)	2.78 (1.26)	2.70 (1.17)	2.66 (1.18)
PhD scholarship students will finish faster because their intrinsic motivation is higher.	2.06 (1.00)	1.84 (.96)	2.54 (.96)	2.33 (1.08)	2.27 (.93)	2.25 (1.02)
Because PhD scholarship students apply with their own research proposal, you obtain a good impression of the prospective PhD student's quality.*	2.88 (.96)	2.68 (1.11)	3.40 (.68)	3.31 (1.07)	3.10 (1.05)	3.16 (1.05)
It is problematic for supervisors that PhD scholarship students are allowed to choose their own work hours and location.**	2.61 (.97)	2.61 (1.20)	2.18 (.82)	2.79 (1.14)	2.74 (1.07)	2.62 (1.10)

Note: * The difference between the disciplines is significant ($p < .05$). ** The difference between the disciplines is significant ($p < .01$). *** The difference between the disciplines is significant ($p < .001$).

19. Supervisors' experiences with supervising PhD scholarship students

The final set of questions dealt with supervisors' experiences supervising PhD scholarship students in particular. We began by asking supervisors whether they supervised PhD scholarship students, with half of the supervisors reporting that they did not. One-third of supervisors were supervising one or more PhD scholarship students at the time of the survey, while almost one in ten was sure they would do so in the future, and the remaining supervisors did not know whether or not they supervised PhD scholarship students.

Based on their own accounts, supervisors from the Social Sciences were least likely to be supervising a PhD scholarship student (see Table 52).

Table 52. Do you supervise PhD scholarship students (i.e. PhD students with a scholarship who started after September 2016)? – by discipline

Answer category	Humanities	Social Sciences	Medical Sciences	Science	Total
Yes	30 (48.39)	23.00 (23.47)	60.00 (33.15	39.00 (41.94)	35.6 (156)
Not yet, but I will do so in the future (i.e. there are plans)	7 (11.29)	10.00 (10.20)	12.00 (6.63)	8.00 (8.60)	8.4 (37)
No	22 (35.48)	61.00 (62.24)	98.00 (54.14)	42.00 (45.16)	50.9 (223)
I don't know	3 (4.84)	4.00 (4.08)	11.00 (6.08)	4.00 (4.30)	5.0 (22)

We also asked supervisors to respond to statements comparing employed PhD students and PhD scholarship students (see Table 53). Overall, the supervisors tended to score below the scale means on these statements; in other words, they tended to not agree with the statements. There were a few differences between the disciplines, which concerned: room for ideas; choices about the direction of the project and methods; and freedom to choose when and where to work. For all of these items, supervisors in the Social Sciences scored lowest, and supervisors in Science the highest.

Table 53. Statements about PhD scholarship students and PhD students

Statements	Humanities	Social Sciences	Medical Sciences	Science	Total
The PhD scholarship students I supervise have made a larger contribution to their project proposal/design than my employed PhD students.	2.36 (1.18)	2.29 (0.83)	2.96 (1.19)	2.78 (1.16)	2.73 (1.16)
My PhD scholarship students more often have unique, new projects.	2.44 (1.19)	2.06 (0.93)	2.64 (0.99)	2.53 0.97)	2.50 (1.02)
My employed PhD students more often work on larger, existing projects.	2.22 (0.85)	2.06 (0.93)	2.65 (1.07)	2.27 (0.91)	2.40 (0.99)
I give my PhD scholarship students more room for their own ideas than my employed PhD students.**	1.74 (0.69)	1.53 (0.52)	2.15 (0.90)	2.34 (1.00)	2.06 (0.89)
I give my scholarship students more freedom to make their own choices about the direction of the project and the methods to be used.*	1.88 (0.90)	1.67 (0.62)	2.25 (0.92)	2.43 (0.92)	2.16 (0.91)
I give my PhD scholarship students more freedom to choose which conferences to attend.	1.75 (0.79)	1.60 (0.51)	2.00 (0.82)	2.14 (0.80)	1.95 (0.79)
I give my PhD scholarship students more freedom to choose which courses to take.	1.78 (0.85)	1.69 (0.79)	2.07 (0.93)	2.17 (0.75)	2.00 (0.86)
I give my PhD scholarship students more freedom to choose which journals to publish in.	1.79 (0.72)	1.60 (0.51)	1.85 (0.74)	2.06 (0.73)	1.87 (0.72)
I give my PhD scholarship students more freedom to choose when and where to work.*	2.08 (1.06)	1.73 (0.80)	2.02 (0.80)	2.57 (1.04)	2.15 (0.96)
I give my PhD scholarship students more freedom to engage in alternative activities (e.g. to do an internship at a company).	1.83 (0.76)	1.67 (0.72)	2.12 (0.93)	2.18 (0.80)	2.02 (0.85)

Note: * The difference between the disciplines is significant ($p < .05$). ** The difference between the disciplines is significant ($p < .01$). *** The difference between the disciplines is significant ($p < .001$).